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| 09/656,393 | 09/06/2000 | Kenneth M. Levine | 24379 | 9357 |

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Richard K Warther Esq
Allen Dyer Doppelt Milbrath & Gilchrist PA
Suite 1401
255 S Orange Avenue P O Box 3791
Orlando, FL  32802-3791

| EXAMINER |
|---|
| BOYCE, ANDRE D |

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DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on <u>06 September 2000</u>.

2a)☐ This action is **FINAL**.    2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) <u>1-49</u> is/are pending in the application.

     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)☐ Claim(s) \_\_\_\_\_ is/are allowed.

6)☒ Claim(s) <u>1-49</u> is/are rejected.

7)☐ Claim(s) \_\_\_\_\_ is/are objected to.

8)☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>09 October 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

     a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4 and 7</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

## DETAILED ACTION

1.    Claims 1-49 have been examined.

### *Claim Objections*

2.    Claims 17 and 42 are objected to because of the following informalities:  The claims are duplicate.  Applicant should change the dependency of one of the claims or cancel one of them.  Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3.    The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.    Claims 1-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the attributes", "the tasks" and "the algorithm" in lines 7, 8, and 12, respectively.  There is insufficient antecedent basis for this limitation in the claim.

Claims 7 and 32 recite the limitation "the total utility" in lines 6-7.  There is insufficient antecedent basis for this limitation in the claim.

Claims 9 and 34 recite the limitation "the job's utility" in line 4.  There is insufficient antecedent basis for this limitation in the claim.

Claims 10, 11, 35, and 36 recite the limitation "the unassigned job queue", "the highest utility" and "the lowest utility". There is insufficient antecedent basis for this limitation in the claim.

Claims 12 and 37 recite the limitation "the utility" and "the assigned jobs". There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "the attributes", "the tasks", and "the algorithms". There is insufficient antecedent basis for this limitation in the claim.

Claim 19 recites the limitation "the present contents". There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "the workings" and "the values". There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitation "the optimum values". There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the worker skills" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "the demands". There is insufficient antecedent basis for this limitation in the claim.

Claim 24 recites the limitation "the location". There is insufficient antecedent basis for this limitation in the claim.

Claim 25 recites the limitation "the status". There is insufficient antecedent basis for this limitation in the claim.

Claim 26 recites the limitation "the attributes", "the tasks", "the algorithm", and

"the working" in lines 7, 8, 12, and 17 respectively.  There is insufficient antecedent

basis for this limitation in the claim.

Claim 43 recites the limitation "the tasks" and "the algorithms".  There is

insufficient antecedent basis for this limitation in the claim.

Claim 46 recites the limitation "the total utility".  There is insufficient antecedent

basis for this limitation in the claim.

Any claims not explicitly rejected depend on rejected claims.


### Claim Rejections - 35 USC § 102

5.       The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.       Claims 1, 4, 6-10, 12-16, 18-20, and 22-25 are rejected under 35 U.S.C. 102(e)

as being anticipated by Powell et al (US 2002/0065700).

As per claim 1, Powell et al disclose a computer implemented method for

managing mobile workers (¶ 0033) in an object oriented programming environment

(software object, ¶ 0040) comprising the steps of: classifying (service work or pooled

work assignment, ¶ 0037) and within a database of a computer a plurality of target

objects (data input) corresponding to facilities assets to be worked on by a mobile

worker (series of events, ¶ 0040); defining the attributes of each target object,

including the tasks to be performed on each target object (work assignments, ¶

0040); scheduling mobile workers for the tasks to be performed on target objects by

running a rule engine (scheduling and optimization engine, ¶ 0040) to determine the

algorithms (iterative algorithm, ¶ 0048) and heuristics (rules) to be used to schedule

mobile workers for the tasks to be performed; and outputting a schedule of jobs to

the mobile workers (distribute schedules, ¶ 0064).

As per claims 4 and 29, Powell et al disclose the step of building a plurality of

user configured system agents for one of at least automating work planning,

scheduling tasks to workers (scheduling based upon data input and associated

rules, ¶ 0040), dispatching workers, stores management, job state management or

end-of-shift management.

As per claims 6 and 31, Powell et al disclose the rule engine determines a

primary scheduling algorithm and parameters to be used for scheduling jobs to

workers (scheduling and optimization engine, ¶ 0040 and 0048).

As per claims 7 and 32, Powell et al disclose the primary scheduling algorithm

comprises a brute force scheduling algorithm that is operable by determining an n

number of jobs and m workers, trying all combinations of n jobs on the schedules for

m workers and choosing assignments that maximize the total utility of the workers'

schedules (brute force trial and error, ¶ 0046).

As per claims 8 and 33, Powell et al disclose the primary scheduling algorithm comprises a round robin scheduling algorithm (iterative algorithm, ¶ 0048) that is operable by assigning jobs to mobile workers sequentially after ordering an unassigned job queue based on a change in job utility (moves through every workforce member with slack time and insert work pooling orders (i.e., unassigned jobs) taking into account the priority of each pooled work order, ¶ 0048-52).

As per claims 9 and 34, Powell et al disclose the primary scheduling algorithm comprises a scheduling algorithm that assigns jobs to workers that maximize the job's utility (pooled work order scheduling based upon based upon slack time and worker skill level, ¶ 0045).

As per claims 10 and 35, Powell et al disclose the unassigned job queue (pooled work queue 110, figure 6) is ordered from the highest utility to the lowest utility (organized by priority, required skill and location, ¶ 0043).

As per claims 12 and 37, Powell et al disclose the algorithm comprises a rescheduling algorithm that is operable by determining the utility of unassigned jobs and rescheduling the assigned jobs, replacing some assigned jobs with unassigned jobs on workers' schedules, based on an added utility (workforce members schedules revised by replacing assigned pooled work orders with higher-priority (i.e., added utility) with customer service requests, ¶ 0072).

As per claims 13 and 38, Powell et al disclose the step of maintaining a historical database (storage device 94, ¶ 0066) that reflects all changes in system

configuration, including targets and tasks, based on running system agents and on

user interactions (¶0068) ¶.

As per claims 14 and 39, Powell et al disclose the step of viewing status and

changes of task, system agents and schedules of jobs within a business viewer

(user interface 102, figure 6).

As per claims 15 and 40, Powell et al disclose the step of maintaining a system

log of all activities (storage device 94, figure 6, ¶ 0068).

As per claims 16 and 41, Powell et al disclose the step of maintaining a policy

database that allows users to configure system agents and a plurality of use cases

corresponding to human and system interaction and definitions (database containing

the scheduling data input and rules, ¶ 0040).

As per claim 18, Powell et al disclose a computer implemented method for

managing mobile workers (¶ 0033) in an object oriented programming environment

(software object, ¶ 0040) comprising the steps of: classifying (service work or pooled

work assignment, ¶ 0037) the attributes (data input) of each target object (series of

events, ¶ 0040), including the tasks to be performed on each target object (work

assignments, ¶ 0040); building user configured system agents and software

components that automate the system environment for managing mobile workers

(software objects creating a schedule based upon data input and rules which apply,

¶ 0040); scheduling mobile workers for the tasks to be performed on target objects

by running a rule engine (scheduling and optimization engine, ¶ 0040) to determine

the algorithms (iterative algorithm, ¶ 0048) and heuristics (rules) to be used to

schedule mobile workers for the tasks to be performed; configuring system agents and software components with user configured settings of a policy database that are reflective of a particular business (optimize the allocation of the workforce in response to changing service requests and priorities present in the service industry, ¶ 0011); and outputting a schedule of jobs to the mobile workers (distribute schedules, ¶ 0064).

As per claim 19, Powell et al disclose the step of updating the policy database interactively wherein the system agents and other software components update their actions based on the present contents of the policy database (deterministic simulation run to find out how control policy impacts the system, ¶ 0009).

As per claim 20, Powell et al disclose the step of simulating the workings of the system environment for determining the values to be used within the policy database (deterministic simulation run to find out how control policy impacts the system, ¶ 0009).

As per claim 22, Powell et al disclose a method of managing mobile workers (¶ 0033) comprising the steps of: creating a job classification (service work or pooled work assignment, ¶ 0037) within a planning agent module of a computer corresponding to a collection of tasks to schedule, and the worker skills (workforce ability) and material (¶ 0004) required to complete the tasks; based on a plurality of rules contained within a rule engine (scheduling and optimization engine, ¶ 0040), matching the worker skills with the tasks to be scheduled; and outputting a schedule for mobile worker management (distribute schedule, ¶ 0064).

As per claim 23, Powell et al disclose the step of matching worker skill resources with the demands of a job within a scheduler agent of the computer (scheduling engine).

As per claim 24, Powell et al disclose the step of tracking the location (workforce member's geographic location, ¶ 0044) and status (time commitments, ¶ 0045) of a workforce via a dispatcher agent of the computer (scheduling engine).

As per claim 25, Powell et al disclose the step of issuing system events within the computer and determining how the status of active job agents within the computer respond via a job state manager agent contained within the computer (schedules are examined by the scheduling and optimization engine after the initial schedule to determine any availability or slack time, ¶ 0070).

### Claim Rejections - 35 USC § 103

7.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.      Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell et al (US 2002/0065700), in view of Burgess (US 2001/0051890).

As per claims 2, 3, 27, and 28, Powell et al does not explicitly disclose classifying the plurality of target objects within a server computer and outputting the schedule to

a client computer operated by a mobile worker and communicating with a mobile

worker via a telecommunications link and a hand-held, web based device. Burgess

discloses servers within the monitored system 14 (¶ 0066) and clients associated

with the monitored system (¶ 0069). Further, Burgess discloses PDAs, pocket PCs,

Palm Pilots, and Internet appliances used to monitor the system (¶ 0058). Both

Powell et al and Burgess are concerned with efficient job scheduling, therefore it

would have been obvious to one having ordinary skill in the art at the time the

invention was made to include the client/server configuration and hand-held web

devices in Powell, as seen in Burgess, thus creating a more flexible system in

Powell via a better equipped workforce.

9.     Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Powell et

al (US 2002/0065700), in view of Lesaint et al (USPN 6,578,005).

As per claims 5 and 30, Powell et al does not explicitly disclose the rule engine

comprises a forward chaining rule engine with different rule sets for each system

agent. Lesaint et al disclose a deterministic rule-based pre-scheduler (column 10,

lines 14-17), wherein the tasks are constructed based upon constraints from the rule

store 35 (i.e., forward chaining, column 10, lines 26-29). Both Powell and Lesaint

are concerned with effective job scheduling, therefore it would have been obvious to

one having ordinary skill in the art at the time the invention was made to include a

forward chaining rule engine in Powell, as seen in Lesaint, thereby creating a more

flexible system in Powell, including various rule sets.

10.     Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Powell

et al (US 2002/0065700).

As per claims 11 and 36, Powell et al does not explicitly disclose the unassigned

job queue is ordered the lowest utility to the highest utility.  However, Powell

discloses the pooled work queue (i.e., unassigned queue) ordered from highest to

lowest utility, as seen in the rejection of claims 10 and 35, and reversing the order of

utility is old and well known, therefore it would have been obvious to one having

ordinary skill in the art at the time the invention was made to include the queue

ordered from lowest to highest utility, thus making the system more robust.


11.     Claims 17 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Powell et al (US 2002/0065700), in view of Lee et al (USPN 6,535,883).

As per claims 17 and 42, Powell et al does not explicitly disclose the step of

building definitions of targets and their tasks, according to the classification of the

targets as templates, and using the templates to create each individual target of the

classification.  Lee et al discloses a form template used for creating and completing

a set of validation rules for fields for a form (column 3, lines 8-10).  Both Powell and

Lee are concerned efficient scheduling and dispatch of mobile workers, therefore it

would have been obvious to one having ordinary skill in the art at the time the

invention was made to include classification of targets as templates in Powell, as

seen in Lee, as an effective means of creating and completing a set of validation

rules

12.     Claims 21, 26, 29, 31-41, 43, and 45-49 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Powell et al (US 2002/0065700), in view of Powell et al (US

2001/0049619).

As per claim 21, Powell et al does not explicitly disclose said step of simulating

further comprises the step of: a) setting policy database values; b) simulating

resultant operations of system agents and software components and viewing the

results; c) iterating between steps a and b to view the impact of setting policy

database variables to various values; and d) using the results of a through c to

determine the optimum values to use for the policy values in a live operational

system.  Powell et al ('619) discloses a) scheduling decision rules (¶ 0006) and

deterministic simulation used to calculate control policy in the system (¶ 0007), b)

simulating the schedule and optimization objects (¶ 0054), c/d) process repeated

until requests are optimally placed inserted into schedule and then real data is

placed into the model to improve future allocation, thereby determining optimum

policy values.  Both Powell et al's are concerned with effective schedule

development, therefore it would have been obvious to one having ordinary skill in the

art at the time the invention was made to include the simulating step in Powell ('700),

as seen in Powell ('619), increasing the robustness of the Powell ('700) system by

using simulation to calculate control policy in the system.

As per claim 26, Powell et al disclose a computer implemented method for

managing mobile workers (¶ 0033) in an object oriented programming environment

(software object, ¶ 0040) comprising the steps of: classifying (service work or pooled

work assignment, ¶ 0037) and within a database of a computer a plurality of target

objects (data input) corresponding to facilities assets to be worked on by a mobile

worker (series of events, ¶ 0040); defining the attributes of each target object,

including the tasks to be performed on each target object (work assignments, ¶

0040); scheduling mobile workers for the tasks to be performed on target objects by

running a rule engine (scheduling and optimization engine, ¶ 0040) to determine the

algorithms (iterative algorithm, ¶ 0048) and heuristics (rules) to be used to schedule

mobile workers for the tasks to be performed.  Powell ('700) does not explicitly

disclose establishing a simulator database and running a simulator program to

establish policy values in a simulation of the working of a system environment to

determine optimum policy values for a given business.  Powell et al ('619) discloses

historical database 40 (figure 3), scheduling decision rules (¶ 0006) and

deterministic simulation used to calculate control policy in the system (¶ 0007), and

simulating the schedule and optimization objects (¶ 0054).  Both Powell et al's are

concerned with effective schedule development, therefore it would have been

obvious to one having ordinary skill in the art at the time the invention was made to

include the simulator program in Powell ('700), as seen in Powell ('619), increasing

the robustness of the Powell ('700) system by using simulation to calculate control

policy in the system.

Claims 29, 31-41 are rejected with the corresponding duplicate claim, as seen

above.

Claims 43 and 45-49 are rejected based upon the rejection of claims 26, 29, 32,

33, 41, and 26, respectively, since they are the system claims corresponding to the

method claims.

13.    Claims 27, 28, and 44 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Powell et al (US 2002/0065700), in view of Powell et al (US

2001/0049619), as applied to claim 26, in further view of Burgess (US

2001/0051890).

Claims 27 and 28 are rejected with the corresponding duplicate claims, as seen

above.

Claim 44 is rejected based upon the rejection of claim 27 since it is the system

claim corresponding to the method claim.

14.    Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Powell

et al (US 2002/0065700), in view of Powell et al (US 2001/0049619) as applied to

claim 26, in further view of Lesaint et al (USPN 6,578,005).

Claim 30 is rejected with the corresponding duplicate claim, as seen above.

### *Conclusion*

15.    The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

-Cherneff et al (USPN 6233493) disclose a product development planning

system.

-Ginsberg et al (USPN 6070144) disclose scheduler developer based on a

systematic and nonsystematic engine.

-Sorkin et al (USPN 6484036) disclose scheduling mobile agents.

-Jacobs et al (US 2001/0047287) disclose finding an opening in which to fit an

order in a schedule.

-Kocur (USPN 5913201) discloses assigning workers to work projects.

-Lane et al (US 2002/0026342) disclose a scheduling engine for optimally

scheduling the allocation of service providers.

-Mahapatro (USPN 6571215) discloses generating a schedule by generating

assignment tasks.


16.     Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Andre Boyce whose telephone number is (703) 305-

1867.  The examiner can normally be reached on 9:30-6pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tariq Hafiz can be reached on (703) 305-9643.  The fax phone number

for the organization where this application or proceeding is assigned is (703) 872-

9326.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703)

308-1113.

adb

Susanna Diaz
Primary Examiner
AU. 3623